Transcript

MIKE: Good afternoon, everyone. Or good morning, depending on where you are. Or, good evening. My name is Mike Davidson. I'm a Librarian with the National Library of Medicine's Engagement branch. My pronouns are he/him/his and after we take care of a little bit of housekeeping what we're going to do with today's session is dedicate a good portion of it to a presentation from my colleague Louise To, who will take us through some of the highlights of this year's update to the Medical Subject Headings vocabulary. Once Louise finishes up her presentation, we're going to spend the rest of the time answering your questions, and you should feel free to submit your questions as you think of them throughout the session using the Zoom Q&A feature, which you should be able to find near the bottom of your Zoom window. We will also be occasionally using the chat feature to share some helpful links to to resources with you, but we ask you to post your questions in that Q&A tool. That way we can make sure that we get to as many of them as possible, and have them handled by the right people. When we get to the Q&A portion of the session, I'll read some of your questions aloud and to help answer your questions, we have with us a great panel of experts from all across NLM each have their own particular specialty when it comes to MeSH and MeSH indexing. During this Q&A segment, our experts may also answer some of your questions right in the Q&A panel itself for questions that require a more detailed or technical response. One last note before we get started, this webinar is being recorded. So those of who are unable to join us today can watch later and so that you can refresh your memory after we're done. Without any further ado, I'm going to turn things over to Louise and we can get started.

LOUISE: Thanks, Mike. And actually something came in to the Q&A. Someone in the audience, Liz, likes the horses in your background. They also collect those horses. But anyway, welcome everyone to the 2024 MeSH Highlights webinar. As Mike said, I'm Louise To. I am a Technical Information Specialist in the Engagement branch at the National Library of Medicine.

So every year updates are made to the Medical Subject Headings, also known as MeSH, the NLM controlled vocabulary thesaurus used for indexing articles for PubMed. This annual webinar aims to introduce those changes and provide examples of how the changes may affect you, as a PubMed searcher, the intended audience includes librarians, catalogers, and really any PubMed searchers that are somewhat familiar with MeSH's structure. If you're not familiar with MeSH's structure or PubMed, we will have many classes that can help you learn these tools. We will drop the links to those in the chat, and if you've tuned in in previous years, you'll know that I like to get a feel for who is here with us in the audience. So I'm going to ask Michael, our logistics person here with us today, to put up a poll, and I'm going to give you 30 seconds to respond to this poll. Let us know how you identify. Are you a librarian, a cataloguer? Maybe you're an indexer? Or maybe you're just a general PubMed fan? OK, nice. It looks like majority of us here are librarians. We have catalogers, information professionals, some researchers, and a few health professionals. And then one in the Other category. That's interesting. OK, well, welcome everyone. Thank you, Michael. You can close the polls.

And in addition to being familiar with PubMed, this webinar will also be referring to the MeSH Database, which displays MeSH records and can be used to help you construct search strings in PubMed. If you're not familiar with it, we've dropped the link in the chat for you to explore. Hopefully this presentation will give you a brief introduction to the Database.

Our agenda for today begins with an overview of the number of changes that have been implemented for MeSH 2024, and we will share a bunch of links to various resources that you can reference at a later time. Then I'll move into the bulk of the webinar, which will illustrate examples of changes from different branches of MeSH and we'll discuss how these changes may apply to searchers. Thirdly, we'll briefly describe a collaborative project that the MeSH team has worked on to identify new terms. And lastly, we'll conclude with the Q&A panel with many of our subject matter experts.

Before I get into the numbers, I want to point you to the NLM Technical Bulletin, which provides updates on NLM's various offerings. The Technical Bulletin publishes articles about updates happening with MeSH. And in fact, this past year, we started announcing MeSH updates as early as August of 2023. To increase transparency, MeSH has been and will continue sharing drafts of changes for the next MeSH cycle. Another thing to note if you regularly keep up with these announcements, the annual article used to be titled MEDLINE and MeSH Data Changes where it referred to a process called Year-End Processing (YEP), this year that process is now called Annual MeSH Processing. To read more, we're dropping the link to this year's article in the chat, as well as instructions on how to subscribe to the Technical Bulletin if you aren't already.

For MeSH 2024, we have a total of 30,764 main headings. 311 of them are newly added. As far as Supplementary Concept Records, also known as SCRs, the count is at 322,838 with 367 of them being new. This slide breaks down the new MeSH terms by branch, with the most new MeSH headings falling under the Chemicals and Drugs branch. If you are interested to dig into the data, the Annual MeSH Processing Technical Bulletin article, which I mentioned a few slides ago, provides instructions on how to access the update reports for the MeSH 2024 release. These reports can be found from the NLM Data Discovery Catalog, and we'll also drop the link in the chat for you.

While this presentation will focus on how the new updates to MeSH will affect PubMed searching, I'll note that MeSH 2024 has also been adopted in the NLM Catalog.

If you'd like more details on the use of MeSH 2024 and cataloging, please refer to this Technical Bulletin article published in December. Link is being dropped in the chat. This past fall, on September 26th, 2023, there was a training webinar called Cataloging with Medical Subject Headings, taught by Sharon Willis, who is a Senior Cataloging Specialist, and Kate Majewski, who is one of our librarians. Both of them are here with us today, so feel free to ask some questions in the Q&A. We'll also be dropping the link to this recording in the chat. This training will also be offered this upcoming spring, so if you're interested in attending, please look out for the announcement in the Technical Bulletin.

OK, plenty of housekeeping there, but let's now dive into examples of changes.

Let's start with something fairly relevant to the news. Respiratory Syncytial Viruses is a group of viruses in the pneumovirus genus causing respiratory infections in various mammals. With a 2024 update, two more entry terms have been added, Orthopneumovirus and RSV Respiratory syncytial virus.

Entry terms automatically translate in PubMed if they are exact. On this slide you see an example of a PubMed search for orthopneumovirus without any quotes or tags. Since we searched the exact word that is designated as an entry term, PubMed triggered the MeSH term of Respiratory syncytial viruses.

Searching for part of an entry term won't always trigger PubMed to include the heading that the entry term belongs to. On this side, you see a PubMed search for RSV without quotes or tags. This search does

not trigger a specific MeSH term because RSV can refer to many different things. For example, do you mean resveratrol, which is a polyphenol produced by various plants, including grapes and blueberries? Or rosuvastatin, which is a drug for cholesterol? Or do you mean radiation synovectomy or Rous sarcoma virus?

This is where the MeSH database can help you identify the most updated, appropriate terms to use for your search string. When searching the phrase RSV, it recognizes RSV to be part of 27 records including respiratory syncytial virus vaccines and respiratory syncytial virus infections. Searching in the MeSH database will retrieve the MeSH records that contain your keywords of interest and from there you can determine which are most appropriate for your search. Now, if you are completely new to the MeSH database, hang tight, I will do a quick demo later on in this presentation.

This next example illustrates the renaming of the MeSH term Influenzavirus A, which as the name suggests, causes influenza and other diseases in humans and animals. Influenzavirus A was renamed to Alphainfluenzavirus to keep MeSH consistent with the International Committee on Taxonomy of Viruses. Influenzavirus A is now an entry term for the main heading Alphainfluenzavirus. If you have saved search strings with Influenzavirus A in quotes along with the MeSH tag, then you'll notice that the search string is not retrieving any results because it is not triggering the newly renamed MeSH term of Alphainfluenzavirus. To trigger the newly renamed MeSH term of alphainfluenzavirus in your search translation, you'll want to remove the quotation so that PubMed can recognize Influenzavirus A as the entry term and retrieve the relevant indexed articles. Now, the rules about quotations and tags can be quite confusing, so we always recommend consulting the MeSH Database. Searching Influenzavirus A in the MeSH database gives you two terms that could be relevant. The results list includes the scope note for each term, and you'll want to read through the scope note to identify the most appropriate term for your search. And as the searcher, we were looking for the MeSH term that refers to the genus, which turns out to be the very first result.

On to an example of an SCR, also known as Supplementary Concept Record, getting promoted to a main heading. The term Daphnia, which refers to a diverse genus of minute freshwater crustacea, was established back in 1972. Daphnia pulex was established as an SCR in January of 2023. For MeSH 2024 Daphnia pulex was promoted to a main heading treed under Daphnia and Daphnia magna was also added as a main heading. OK, cool, these little water fleas are cute, but what does that mean for you if you have this term in one of your search strings? Well, it means that automatic explosion now applies. Automatic explosion is the mechanism by which searching a MeSH term in PubMed will include all articles indexed with narrower terms in the hierarchical list. When you search the word Daphnia without quotes in PubMed, it will trigger the MeSH term and the results will include all articles indexed with the child terms Daphnia pulex and Daphnia magna.

You can see the tree structure for each term in the MeSH Database. On this slide is a truncated view of the MeSH Database record for Daphnia. At the very bottom of each record you can find the tree structure, which illustrates all the broader and narrower terms. To understand how your query will explode, you'll want to examine the child terms.

This next example illustrates an SCR that became the entry term to a main heading, Pancreatic carcinoma was established as an SCR in 2012. For 2024, the term Pancreatic carcinoma became an entry term to the main heading Pancreatic neoplasms. This change is significant because now automatic explosion applies. With MeSH 2024, searching pancreatic carcinoma will trigger the MeSH term

Pancreatic neoplasms and will include all articles indexed with narrower terms in the hierarchical list, which in this case includes Adenoma, islet cell; Carcinoma, islet cell; Carcinoma, pancreatic ductal; and Pancreatic intraductal neoplasms.

Previously searching Pancreatic carcinoma without tags or quotations would trigger the search to include articles indexed with the supplementary concept record, yielding about 13,000 results. As an SCR, the term did not explode because it did not have child terms and was not part of the MeSH tree structure yet.

For 2024 the same search is going to trigger the main heading Pancreatic neoplasms and automatic explosion, thereby retrieving many, many more articles, about 121,000.

So for this example, I'll do a quick demo of navigating the MeSH Database. OK, so this is the homepage of the MeSH Database. In the search bar at the top, we're going to type in pancreatic carcinoma and click on Search. This takes me to the results list and I'm given three terms. The first one is Pancreatic Neoplasms; pancreatic carcinoma, familial, which is a supplementary concept record; and, PTPRU protein, human, which is also a supplementary concept record. As a searcher, you'll want to read through each of the scope notes to determine which of these concepts is most relevant for your search. And in this case I'm interested in the cancer itself, which turns out to be the first result of Pancreatic Neoplasms.

So I'll click on the term which will take me to the full record, and in the full record you're going to see the term, the scope note, and then also many subheadings that can be added to your query if so desired. On the right hand side you're going to see the very handy tool of the PubMed Search Builder, which will help you construct search strings as you are identifying MeSH terms within the MeSH database. As we scroll down the record, you'll see a list of entry terms that will trigger this main heading in PubMed, and then at the very bottom you're going to see the MeSH tree structure. For this term, the MeSH tree structure is displayed several times because the term can be found in a few branches in the MeSH tree. As a searcher, you want to make sure that these child terms are concepts that you want included in your query. And for the sake of this demo, I'm fine with including these concepts. So then I'll go back up to the PubMed Search Builder and I'll click on Add to search builder and then I'll click Search PubMed which will then run this query, taking me to PubMed and it gives me about 92,000 results.

Now that was a very, very quick demo, but if you would like more detail I recommend taking the MeSH Changes and PubMed Searching class that will occur later this month on January 25th. This course will take a deeper dive into how the MeSH changes can affect you, including more in-depth examples of using the MeSH Database to support your searching. Now, if you missed the registration, fret not, the class will be recorded and you can view it at a later time.

On to another example from the Social Sciences branch and relevant as we are upon another election year, this example covers an entry term that became a main heading. In 2023, the term voting was one of the entry terms to politics. Child terms of politics include diplomacy, environmentalism, lobbying, political activism, and stakeholder participation.

Previously, if you searched the word voting without quotes or tags, PubMed would pull up the MeSH term politics and automatically explode to include all articles indexed with the five child terms listed on the previous slide, yielding about 76,000 results.

For 2024, voting was removed as an entry term and turned into a main heading treed under the term politics. With the new update, the same search no longer triggers the main heading politics. Instead it triggers the term voting. And since voting does not have any child terms, you'll notice that there are significantly less results, about 8000.

Our last example illustrates the addition of a new sub-branch for snakes. Before MeSH 2024, snakes sub-branched into Alethinophidia followed by four child terms that refer to families of snakes. There are many more families of snakes, but these families became MeSH terms because there was a significant amount of literature about them. For 2024, the term venomous snakes was added as a child term to snakes. This new branch is helpful because there are more than 19,000 articles on snake venom and therefore it makes sense to be able to retrieve articles about the snakes that produce said venom.

Previously, if you wanted to find articles about venomous snakes, you would have had to build a search string by identifying which families of snakes are venomous. Now an ophiologist, which I've learned is someone who studies snakes, might look at the MeSH terms and know offhand that venomous snakes belong to the elapid and viper families. Now a non-ophiologist like myself would likely have had to review the MeSH tree structure and the scope notes for all of the snake families before constructing an accurate search string that would retrieve about 7,425 results.

Now with MeSH 2024, you can just search the MeSH term venomous snakes and that will automatically explode to include the relevant child terms, which at this moment yields the same number of results.

So I'll close out by sharing an ongoing collaborative MeSH project. The MeSH team had been working with NIH colleagues at the Office of Behavioral and Social Sciences Research and the National Institute on Aging to enhance terms and concepts related to psychological stress. 54 terms have been added with 9 new main headings related to stress and resilience such as emotional exhaustion, coping skills and psychological growth. Identifying and evaluating MeSH terms is a continuous year-round process. In fact, as we introduce MeSH 2024 to you, MeSH 2025 is already being worked on, including a recent project on identifying terms related to artificial intelligence and machine learning.

To stay informed about MeSH, we encourage you to visit the What's New in MeSH page, which we will also drop the link to in the chat. And speaking of year-round processes, we want to share an upcoming engagement opportunity that is scheduled for next month. On February 28th, we will be hosting an NLM Office Hour on PubMed and Automated indexing. You can find the link to this upcoming event in the chat. At the last MeSH Highlights, we briefly described automated indexing and shared several resources for you to learn more about NLM's process. We will drop the links to those resources in the chat and we welcome you to attend next month's Office Hour to engage with NLM's PubMed and Indexing Team.

And now I'll hand it back over to Mike to bring us into the Q&A portion of this webinar.

MIKE: Thank you very much, Louise. So as Louise said, it is now time for us to get into your questions. And I already see a number of great questions coming into the Q&A panel. So we're off to a good start. Please keep them coming. Keep submitting those questions in the Q&A box so that I can read them to our panel and have them answer your questions verbally. Speaking of our panel, let me give them a brief introduction before I start asking them your questions. In addition to Louise, we have Dan Cho, our MeSH Project Coordinator. We have Alex Sticco and Deborah Whitman from NLM's Controlled Vocabulary Services program to address questions about MEDLINE indexing. We have Sarah Fujisaki from

our Terminology Services program; Sharon Willis, Senior Cataloging Specialist from the Metadata Management program. And we also have Amanda Sawyer representing the NCBI PubMed team, and my colleague Kate Majewski from the NLM Training Team. So between us all, hopefully we should be able to answer most of these questions.

So let's get started. Michelle McGinnis asked a question that is both basic and deep, which is **please explain SCRs. Dan, do you want to kick us off with that?**

DAN: SCR. Some of you folks probably remember as a supplemental chemical records. It is now a supplemental concept records and we have multiple-- essentially you can sort of think of it as a junior MeSH record. So when we don't have enough postings for some of these minor concepts, we are adding them as an SCR. So you know we have chemical, disease terms, ethnic minority terms, anatomical terms. Many of these you know less than, whatever posting that you can actually find in the title in PubMed, we're making them ready to be made into or promoted into descriptors.

MIKE: Awesome Dan. Thank you for that. And if you want more information about SCRs and some of the other sort of basics of how MeSH works, especially how MeSH works with relationship to PubMed, I would point you to our How PubMed Works class, specifically the session on MeSH. We have another round of those classes coming up, but they're also all available on-demand and SCRs are covered in that How PubMed Works: MeSH session. I think somebody will hopefully drop a link to that one, to that class in the chat as well.

But in the meantime I'm going to go to another question about MeSH with relationship to PubMed. This one's from Andrea. **Could you please clarify when to use phrases in quotes with and without MeSH as a tag, MeSH in brackets? Amanda, that is a PubMed type question I think that would be great for you to take a take a look at.**

AMANDA: Sure. Yeah, it's a great question. And using double quotes in field tags in PubMed can get a little confusing. So I'm going to give a brief overview, but if you want more information, please feel free to write to the help desk. We're always happy to help with these types of questions. So when you search with double quotes in PubMed, that is turning off PubMed's automatic term mapping. So you'll use the double quotes when you know an exact phrase that you're searching for, and you don't want PubMed to return anything else or map to any other terms. So when you're searching for MeSH, this means you're searching for an exact MeSH term, and using the double quotes and the field tag means you can't put like one of the entry terms in front of it, it won't map to that. You need to know the exact MeSH term that you're looking for. If you search without the double quotes but with the MeSH tag, it'll still map to the MeSH term if you search on one of the entry terms. So I'll give an example. If you search for the phrase heart attack with double quotes and the MeSH field tag, this isn't going to return any results because heart attack is not a MeSH term. But if you search for heart attack with the MeSH field tag but no quotes, it will map to myocardial infarction, which is the MeSH term that heart attack is an entry term on.

So one final thing is if you enter search terms as a phrase with the double quotes without a MeSH tag, PubMed does not perform any automatic term mapping and that includes the MeSH term and any specific terms under that. So for example, if you search for the phrase health planning in double quotes, PubMed is going to include citations that are indexed to the MeSH term health planning, because that appears on the record in that exact phrase. But it's not going to include the more specific terms like

healthcare rationing, healthcare reform that would have been included in the automatic MeSH mapping. And I'm going to drop a link into the chat from the PubMed User Guide about searching for exact phrases with double quotes. But again, if you have questions about this or about a specific search, please write to the help desk. We're always happy to help with these.

MIKE: Excellent. Thank you, Amanda. It looked like there was actually quite a few questions about searching with quotes, which I know is always a tricky thing in PubMed, so hopefully that answer cleared up a bunch of those. If you still have those questions, feel free to to ask more specifically what you're looking for. I'm going to actually answer a question myself. I know I'm supposed to hand these to the panelists, but I think this one is particularly in my wheelhouse. Tracy asks, **is there anywhere that old MeSH is available to see how things have changed over time, not just the previous year in the MeSH Browser, but more historic MeSH information?**

And there actually is a way that you can get access to that using our data distribution program. You can download MeSH data, and I'm going to put a link in the chat here. And that allows you to download current MeSH data in a variety of formats, but also earlier MeSH data as well, earlier year MeSH data, I think going back in some cases as far as 1999. So you have to obviously download that and format it yourself. It's not in the MeSH Browser the same way that just the previous year is, but that that information is available.

All right, let's see what else we got here. While I was answering that question, a whole bunch more came in. Let's go with this one. Sorry I lost it, I'm just scrolling too fast. This one might be good for Amanda again. I noticed that MeSH terms are currently not listed for preprints cited in PubMed as part of the Preprint Beta. Will MeSH terms eventually be applied to preprints in PubMed? And this might also be something for Alex to answer as well as an indexer.

AMANDA: So we don't index preprint citations in PubMed because we only index MEDLINE selected journals, citations from MEDLINE selected journals, and that is our current focus. We don't have any plans to expand that. So that being said, once the preprint is published in a journal, it's going to receive a separate citation in PubMed and it gets an update link added to it. If that journal is selected for MEDLINE, then it'll get indexed in that published article citation will be indexed with MeSH terms.

MIKE: Excellent. Thank you for that. And then we have a couple of questions here that have to do with how PubMed records are changed with new MeSH. So I'm going to start with this one and then we might we might hit a couple of other places as well. Melanie asks, **is this right? Old MeSH terms are not removed or changed from records, but they become entry terms for the new terms. So the records show up when you search on the new term. Alex, I think you might want to handle that one.**

ALEX: Yes, sorry, I was muted. When we change the preferred term, so for something like voting for example, which is-- well that's not really a good example. So sometimes we'll change the preferred term for that MeSH concept as the language changes and becomes outdated. And when we do that, we actually do go in and update the records with the new preferred term. So the same concept with the same identifier stays on the article but the actual term string there changes the words that are used to describe that concept and so we make that kind of update. What we do not do is when we have a new term like voting we don't go back and re-index old articles with it. So articles before this year's MeSH, before 2024 MeSH, we wouldn't go back and re-index articles with voting. Any articles about voting would still have politics on them from the previous years. So I hope that clarifies it. What we what we do

and what we don't do. We do change terms when the term itself is updated. That is a revision that we make. But we do not re-index articles with brand new terms that we have added to the vocabulary.

MIKE: Awesome. And I want to actually stick on indexing for one second. I'm going to go back to retrospective indexing in a second. But Deborah, it looks like you might actually have an answer for this that you might be writing. So I'm just going to let you verbalize it. Elizabeth asks, **how long does it take for a new article to be indexed with MeSH headings?**

DEBORAH: Yes. Hi. We actually index new citations and MEDLINE journals within one day of receiving them from the publisher, one business day. So if we get it on Saturday, you won't expect to see it until Monday or Tuesday. But yes, generally within one business day.

MIKE: Excellent. Thank you so much for that. I'm going to go now-- **We have a couple of questions here that relate to MEDLINE and MeSH being used on other platforms, so not in PubMed, but in other platforms like Ovid or ProQuest that use MEDLINE data, that use NLM data and MeSH. One question here for Michelle, are the old records updated with the new MeSH terms in those platforms? Amanda, you came on video, so I assume you want to answer this one.**

AMANDA: Yeah, I'm happy to answer that. So other vendors, and if you want to use PubMed data, you can get it this way too. They get all of our data from our FTP site and we post daily update files that have any changes that are made to PubMed citations. And then as far as when external vendors incorporate those into their databases, that's all on their timeline. So yes, they do get the updated data from us and they'll have those updated MeSH terms after our year end processing. But as far as like exactly when they incorporate those into their database, you'll have to contact their help teams to find out more about their timeline for how often and how long it takes after PubMed is updated for those to show in their databases.

MIKE: Excellent. And we have another question here that is along the similar lines. I don't know, Amanda, if you want to take this one as well, or Kate might have an answer for this, from E. Newman. **I use MeSH in MEDLINE with Ovid and will often search by typing or copying and pasting a MeSH term, not selecting from the tree as MeSH terms can appear in more than one tree in the thesaurus with sometimes different child terms. How do I know which tree was selected? It also seems to me that for a specific term, only one tree appears in MEDLINE Ovid, while in the MeSH database you can see that the MeSH term appears in more than one tree. Amanda, if you want to take that you can. Or Kate, you can, you can take a crack at that.**

AMANDA: I'm going to pass that one on to Kate.

KATE: Sure. So actually the answer is we don't have an answer for you unfortunately, because we're not versed in the other systems that may use our data. What we can tell you is that if you search in PubMed with a term that is MeSH or maps to MeSH, all of the branches underneath that term, all the narrower terms will be included in every branch. Whether other systems work the same way as PubMed, I'm afraid you need to go to those other companies and ask them how it works. Sorry, but that's our answer.

MIKE: All right. We have a question here. Changing gears a little bit, Jose Luis asks, **is there any MeSH terms database in other languages? Dan, you might have a little bit of insight into this.**

DAN: Yeah. We used to actually work with various different institutions around the world to translate MeSH into their own languages. But you know, we stopped actually. I mean, we're still helping with them, but we're not doing it directly. But yes, there are Polish versions, Japanese versions, you know, Swedish versions, etcetera.

MIKE: Thank you for that, Dan. Let me see what else other questions have come in here. Oh, this is a good question. I think, Dan, this might also be in your wheelhouse. **Recently I was working with the researcher who mentioned that some MeSH terms appear to be outdated as they're related to her field. In this case, what should I do? Is there someone I should inform?**

DAN: I think sometimes, you know sometimes the request comes in and then we sort of review it and then we decide to perhaps leave it or make the changes not exactly to their liking. In those cases I think probably the best thing to do is just let us know of what other changes may be required you know and then we will reconsider your request.

MIKE: Excellent. And I think somebody, I don't have this link in front of me, but I think somebody can put in the link to where people can submit suggestions for MeSH which I think is sort of a broader topic but I think is important as well. You know we are eager for feedback on MeSH and on things that can be improved and there is a channel for that which is the MeSH suggestions link. I'm going to let somebody else put that in the chat while I'm looking at the next questions. So let's see I'm just taking a look here. Here's a question from Hannah, **is there a PDF list of the new terms with their scope notes? Dan, this again might be one for you.**

DAN: It's quite interesting. We used to publish that every year and since we have actually switched over to automatic indexing we've decided not to make it this year. I mean I think the index may actually have it made that I'm not aware of, but no we don't, I don't think we have it this year.

MIKE: Yeah, I know that we've been experimenting over the last couple of years with some new formats and as Louise mentioned the new no longer year end processing, you know we have the new name as well. So we are experimenting with things. So if that is something that is that is important and meaningful, you know you can let us know via the help desk and we can consider that for future years whether that's something that we need to bring back. All right, let's take a look here. OK. Here's a question from Giselle again. I'm sorry to hit you again Dan. But **as a follow up to submit suggested terms, could you share the process for accepting or rejecting suggested terms, what is the criteria used for acceptance?**

DAN: You know, I think we are very much data-driven. If we get a, you know, request to change over a preferred term, let's say for like you know, voting to be promoted or you know, instead of saying you know monkeypox we might want to say mpox. You know, if the suggestion is valid and then you know CDC supports it and you know FDA supports it or something like that. If we find a good reason for the changes, we will of course change it. But you know, if we see and do the searches in PubMed and then people continue to, you know, keep using the old terms as well as the new terms that is suggested we may stick with the old terms but add the new ones. So, you know, our decision is really based on what the uses is in the field, by the scientists, by the people as reflected in publishing data.

MIKE: All right, thank you so much for that. I have one more question for you while I still have you. I'm going to actually give this one to both you and I think also to Alex as well because I'm not sure exactly

what Elizabeth means by this. So we'll take it both ways. Elizabeth asks, **are the new MeSH terms created and updated by a PubMed indexer or is it done through artificial intelligence? And I'm not sure whether Elizabeth is asking about the creation, the addition of new MeSH terms to the vocabulary, which is you know, something that obviously you were just talking about Dan or the addition of or the adding of MeSH terms onto PubMed records, which is something that maybe Alex can answer afterwards. So Dan, if you want to take the first part and then Alex, you can address the second part.**

DAN: So the MeSH term itself is being currently created by the MeSH team manually and it is not done through automatic, through AI or whatever else. I mean, we do use a lot of the artificial intelligence tools to suggest to us what else we should consider adding to MeSH, but creation of MeSH terms or what to add or what to, you know decide those are done through the traditional manual means.

MIKE: All right. Thanks, Dan. And Alex, if you want to address sort of the indexing side of that, without going into too much details since I know we will be talking about this in February as well.

ALEX: Sure the indexing right now is done automatically. It's not done with what you would generally consider AI, like a deep learning model. Right now the algorithm that does the automated indexing is a pattern, what we call pattern matching or a dictionary-based model, that looks up language and uses sort of a set of rules to decide whether or not kind of matching to the words in the article do we assign certain indexing terms to it based on that. We are switching to an AI algorithm very, very shortly. So we're expecting to launch that at the beginning of February and we'll be having an Office Hours to talk about the changes and the different algorithm and how it works at the end of February.

MIKE: Awesome. Yeah, thank you. Thank you for promoing that as well, which is one of the reasons that I was throwing that to you. If you are interested in more stuff about this, about automated indexing, then I strongly encourage you to sign up for that for that February office hours where a number of these folks will be back, but will be sort of focused on PubMed in general and on indexing specifically.

ALEX: I should add that while the indexing itself is automated, we do the indexing afterwards. So humans sort of touch about 1/3 of the automatically indexed articles to do quality control for certain high impact terms like publication types and population groups and so there is still some human intervention in the automated indexing. But what you get after one day is from the automated indexing. Human curation takes place over the next week, usually within a week.

MIKE: Excellent. And yeah, like both Alex and I said, we'll be talking a lot more about this on February 28th, so make sure you stop by for that. All right. It looks like we are, we are getting close to the end of the questions in the Q&A. So if you have questions and were waiting on later in the session to ask them, please go ahead and throw them in because we don't have a ton of time left, but we do have a little bit more time. And time to get into some more of these questions. Elizabeth asks, **I've had some problems with searching MeSH terms with subheadings, especially with subheadings that contain an AND or ampersand [&]. (That's a tricky question to read.) For example, paratuberculosis/prevention and control tagged with MeSH. Should I enclose the MeSH heading and subheading in quotation marks in order for it to translate correctly? Amanda, do you want to take a crack at this one?**

AMANDA: I have kind of maybe an unsatisfactory answer for you and that is that just since you put your question in I've been comparing it in PubMed myself and I'm not seeing a difference in that translation when I search it with or without quotes. So this is a great thing, write to the help desk, if you notice a

search that's not translating the way you would expect, and then we can either explain why it's translating that way or maybe there really is something going on that we need to look into deeper. So if this doesn't answer-- if you have another example that translates differently of PubMed, please do write to the help desk or write about this one. We can talk about it more from there.

And the second that I'll just tag on at the end here is that the more complex your query syntax gets, the more we start to recommend using double quotes around things that you want searched as an exact phrase. So an example of that that's really common in PubMed is DOI searching because it includes slashes and other special characters, so it'll improve the results you get to use double quotes. So in general, if you know you want an exact phrase, use the double quotes.

MIKE: OK, yes, that is a tricky situation and I think that with some of those technical search questions, you know, while we're always happy to answer them here or in our Office Hours, sometimes it is something that we need to go back and forth on in writing. So again, if you do have these technical search questions, we do encourage you to send them in via the help desk. All right, a couple of questions that I still saw, one that that maybe got bumped out accidentally. So I want to make sure that I hit this before we go further. Julia Cleaver asks, **I saw that there are two new publication types. What are those? Deborah, you have unmuted, so I'm going to let you go ahead and answer that.**

DEBORAH: Yes. The two new publication types this year are comic books and photo mechanical print. And if you don't know what a photo mechanical print is, I didn't. A photograph is printed on light sensitive paper and a photo mechanical print is basically anything else. It's a photo printed in a newspaper or a magazine or whatever comes out of your inkjet printer.

MIKE: All right, thank you for that. I'm just looking through these questions. I just want to make sure that we get to as many as we can. So just give me one moment here. Alright, I see that we have a couple of older questions in here so I will be getting back to those but I just saw one come in real quick here. **Is there a way to add a column for scope note to this spreadsheet?**

So this is again looping back to the scope note PDF that we didn't produce this year and Hannah has pointed out; those new reports that we've made available through data discovery. And that's certainly something we could consider. That's something that we'll have to obviously discuss among the technical team. It might not be possible this year but we might be able to look at that for the future. But that's a good suggestion. We will take that and consider it among the team.

Hang on a second. Just taking a look here. Elizabeth asks, **since you mentioned comic books, will there be graphic medicine on PubMed soon? I guess that might be a question for Amanda in terms of things being added to PubMed. You can maybe explain a little bit about selection policy.** We might have lost Amanda, but hang on a second.

AMANDA: Whoops, sorry, too many windows open. I'm not an expert on MEDLINE selection, but we do have documentation on what types of content are included in PubMed and accepted for PubMed. I'm not aware of any plans to include comics or graphic medicine in PubMed at this time in MEDLINE.

MIKE: Awesome. Thanks for that. All right, let's see, we have a few more in here. But again, if you have a question that you'd like answered, or a question that you asked already that has not been answered but we accidentally marked it as answered, throw it in there. Now we've got a few more minutes to get to as many of these as possible. OK, Amanda, I think this is another good one for you that just came in. **Are**

your automatic term mapping algorithms for an author or citation search the same, or have they changed to use AI in some way?

AMANDA: So automatic term mapping isn't an algorithm. It's based off of translation tables in PubMed, and that hasn't changed recently. But basically we have a series of translation tables - terms, journals, author names - and your search terms get matched against that, and that's how the mapping occurs. We can link to the PubMed User Guide section on Automatic Term Mapping where it describes each of these translation tables and tells you exactly what order that automatic term mapping uses to do the mapping and when it would stop looking at other tables for a match. And then even beyond that, if you're still curious even more about how ATM works, there is a link to the paper that was written when Automatic Term Mapping was created. So all of the information is there and you should be able to find it there, but the simplest answer is you're matching your terms against a couple of translation tables.

MIKE: Awesome. Thank you so much. Yeah. I think that that's something that automatic term mapping is doing a lot of work, but it's a pretty simple process when you when you sort of explain it. So all right. I think we have a couple questions left here. This one again, I'm going to stick with you, Amanda, since you're already on screen. From Alex, **when a record's MeSH are changed, as in, some of the algorithmically applied terms are replaced as part of the as part of the annual process, is there a way to see the old terms alongside the new one?**

AMANDA: Not exactly. It's not like you can pull up a PubMed record and see that change history in PubMed itself. If you're someone who uses our FTP files, we're not removing that information. And so you could look at how a citation changed over time by looking at all of the daily update files that that citation appears in. That would be a computational process. It wouldn't be easy to do, but it is possible. All of that data is there, but you're going to have to go through the FTP files to find it.

MIKE: All right, yeah, the answer with a lot of these things is the data is all there if you want to find it. But we aren't able to surface everything all the time. And sometimes it is a task left up to the user. All right, my Q&A panel is clear. So I'm going to stall another few moments in case there's any questions that we marked answered accidentally or any other questions that have come up. But we are getting to the end of our time. So any last calls for questions of any kind that you would like to ask to our panels. And by last call, I mean obviously we have more opportunities coming up next month to ask many of these same panelists questions about PubMed or automated indexing. All right. We saw see a couple of new—

ALEX: I was going to follow up actually on Amanda's answer about the change history of the article to just mention that depending on what's sufficient for your needs, we do have-- the indexing method is an area. So when something is indexed automatically the indexing method is automated and then after if a curator changes some of those algorithmically applied terms, then the indexing method would change to curated. So that is a way that you can distinguish if an article has been curated, if it has been changed by a curator, depending on what you need. So it wouldn't give you the actual changes that have been made, but it would let you know that that was an article that had been adjusted.

MIKE: All right, thank you. We have had a couple more questions come in real quick. Morgan asks, **in terms of reproducibility for systematic reviews, how badly will old searches map to the new terms? Kate, I'm going to throw this to you because it seems like a good opportunity to promo MeSH Changes [class] one more time.**

KATE: Yes, absolutely. So I mean the short answer is in most cases we do the hard work for you and make sure that your old searches still work with new terms, but consider using the new terms for searches in the future. And also consider coming to our MeSH Changes and PubMed Searching class later this month or view the recording once we have that posted and we go into that in detail. So thanks. I'll put the link in chat about the MeSH Changes and PubMed Searching class.

MIKE: Excellent, thank you for that. And we are just about out of time. Looks like we have one more question. An anonymous attendee says, **what's your favorite thing about your work?**

And this is going to sound cheesy, but it is absolutely true. It is talking to all you folks. Being able to share what NLM does and how NLM can help people with the folks that it can help is the absolute best part of my job. So I get to do that today which is a great thing for me, but we are basically out of time here.

So we're going to wrap up here. Thank you, Louise. I want to give a huge thank you to Louise for a wonderful presentation, to all of our panelists for spending some of their time answering questions today, and also to all of you folks who joined us today to ask those questions.

A few more quick reminders. We've said them a couple of times, but I'm going to hit them one more time. For those who want to dig into some of these topics in a little bit more detail, we have the MeSH Changes in PubMed Searching class coming up on Thursday, January 25th at 1:00 PM Eastern that Kate was just mentioning. We have the NLM Office Hours focusing on PubMed and Automated Medline Indexing, which is coming up on Wednesday, February 28th at 1:00 PM Eastern. Registration for both of those events are open now, and there are links in the chat so that you can find these and so many more training opportunities offered by the Network of the National Library of Medicine. You can go to www.nnlm.gov/training to see the full training calendar there.

Links

- PubMed and MeSH training: https://learn.nlm.nih.gov/documentation/training-packets/T0042010P/
- MeSH database: https://www.ncbi.nlm.nih.gov/mesh
- Technical Bulletin article on MeSH changes for 2024: https://www.nlm.nih.gov/pubs/techbull/nd23/nd23_mesh_annual_processing.html
- Technical Bulletin notifications: https://www.nlm.nih.gov/pubs/techbull/rss.html
- NLM Data Discovery Catalog MeSH 2024 update reports: https://datadiscovery.nlm.nih.gov/stories/s/4ekx-rduw
- Technical Bulletin article on 2022 MeSH in Cataloging: https://www.nlm.nih.gov/pubs/techbull/nd23/nd23_2024_mesh_cataloging.html
- Cataloging with MeSH webinar recording: https://www.nlm.nih.gov/oet/ed/mesh/2023/9-29_mesh-cataloging.html
- MeSH Changes and PubMed Searching 2024 class: https://www.nnlm.gov/training/class/mesh-changes-and-pubmed-searching
- What's New in MeSH webpage: https://www.nlm.nih.gov/mesh/whatsnew.html

- February NLM Office Hour about PubMed & Automated Indexing: https://www.nnlm.gov/training/class/nlm-office-hours-pubmed-0
- Technical Bulletin article on NLM's transition to automated indexing: https://www.nlm.nih.gov/pubs/techbull/nd21/nd21_medline_2022.html
- Automated indexing FAQ: https://www.nlm.nih.gov/bsd/indexfaq.html
- Recording of MeSH Highlights 2023: https://www.nlm.nih.gov/oet/ed/mesh/2023/mesh_highlights.html
- NNLM training: www.nnlm.gov/training